

WEDNESDAY, FEBRUARY 25TH, 1880.

The President, the Rev. J. E. Tenison-Woods, F.G.S., F.L.S., &c., in the Chair.

MEMBERS ELECTED.

The Rev. Benedict Scortechini, Logan River, Queensland, and James Garland, Esq., Wagga Wagga.

DONATIONS.

Philosophical Society of South Australia, Transactions and Proceedings for 1879.

Mitthelungen aus der Zoolog. Station zu Neapel.

Rev. Dr. Woolls—Lectures on the Vegetable Kingdom.

The President—Three Vols. Horticultural Magazine, Papers and Proceedings of the Royal Society of Tasmania, Nos. 5 and 8 of the Natural History Review.

PAPERS READ.

ON SOME OF THE FUNGI OF NEW SOUTH WALES AND QUEENSLAND.
BY REV. J. E. TENISON-WOODS, F.G.S., L.S. &c., &c., PRESIDENT
OF LINN. SOC., N.S.W., AND F. M. BAILEY, F.L.S., COR. MEM.
R. S. TAS., &c., &c.

Whatever attention has been paid to the botany of Australia by such illustrious and eminent scientific men as Robt. Brown, Hooker, Bentham and Baron Mueller, we must admit that there are some departments of the science which have been comparatively neglected. These are notably the Mosses, Lichens, and Fungi. The latter have never been approached in a systematic manner by any author. A list was published in the Journal of the Linnean Society in 1873, Vol. XIII., p. 155, by the Rev. J. M. Berkeley, which dealt with specimens sent to Europe from time

to time by Baron Mueller, Dr. R. Schomburgk, Dr. Woolls, C. Moore, &c., &c. This list formed with that given in Hooker's Tasmanian Flora our only Australian literature on the subject.

For some years past one of us (Bailey) has devoted some attention to collecting fungi in Queensland. These have been regularly forwarded to C. E. Broome, of Bath, a notable authority on the Order, who with the Rev. J. M. Berkeley has already published a paper in the transactions of the Linnean Society of London, containing about one hundred species, several of which are new. Another paper by the same authorities is in course of preparation, which will be found to contain a far greater amount of novelties—but while one of us has been working up the Queensland species the other has taken advantage of many opportunities for observing, collecting and classifying specimens of this most interesting order in New South Wales. We purpose therefore to furnish a contribution to Australian Mycology, and so far as possible to popularize the subject with a view to stimulate enquiry. To accomplish this, we shall give short notes on the genera and the more remarkable species. Thus it is hoped that they will for the most part be easily recognized without recourse to an extensive library.

Before proceeding to the enumeration of such species as we are acquainted with, a few general observations may be of interest. It might be thought that in the dry and arid plains of Australia there would not be many favourable localities for fungi, which for the most part affect moist and shady situations. For a great many genera and species this is true. But rotten trunks and decaying trees are found almost everywhere, and burnt surfaces with much charred wood are also very common in Australia since bush fires are of yearly occurrence. A very large tribe also is almost exclusively confined to the bark of trees, that is the *Polyporei*, which are amply represented in the continent. In our open pastures at various times of the year, and especially where sheep have been fed, the common mushroom, *Agaricus campestris*,

Linn., and several other *Agarics* are found. These plants do not figure largely in collection on account of the great difficulty in preserving them. *A. conicus*, sometimes is met with in New South Wales and is supposed by some to have been introduced. It may be easily known by turning black when bruised. The species is eaten in Europe. In Queensland amongst old grass during continued wet we met with quantities of *Stereum nitidulum* Berk., (Hook., Lond. Journ., 1843, p. 638.) The curious dark-coloured, flat-topped, puff-ball, *Bovista lilacina*, Mont. et Berk., is not uncommon on plains. This species does not seem very esculent, but according to Messrs. Berkeley and Broome in their account of the Ceylon fungi in (Linnean Society Journal, Vol XIV., p. 78.) that it is regularly sold as an article of food in the Indian bazaars. The same pasture is often dotted with another puff-ball, *Scleroderma Bovista*, Fr., but in New Zealand *Lycoperdon pusillum*, is the one met with, *S. Bovista* while young, cut into slices is considered an excellent addition to sauces and stews.

Our open forests have their peculiar fungi, on the ground about stony dry ridges the beautiful *Trametes perennis*, Fr., may frequently be seen as well as several species of *Clavaria* and *Polysaccum olivaceum*. This last is a very dark, hard fungus, and has somewhat the appearance of the common puff-ball, but on examination it will be found to be formed very differently inside. Amongst the many *Polypori* found on forest trees none will so frequently be seen as *P. ignarius*. This very dark brown species seems to be particularly fond of the rugged bark of our *Casuarina*. Some of the large *Polypori* are known to bushmen by the name of "Punk." *P. ignarius* is said to be used in some parts according to one author (Gardiner's Chron., 1862, p. 21) for holding æreal plants in lieu of flower pots, for which purpose the pores and part of the inner substance is removed. The pileus is then inverted and fastened in some position where it can be filled with light soil and used for plants requiring but little moisture. Fine red-

coloured species *P. cinnabarinus*, Fr. and *P. sanguineus*, Fr., may both often be observed in abundance in the damp parts of forests on any old timber, and from their bright colors are sure to attract attention. These species are widely spread in Australia and other warm countries; in Queensland they are often accompanied by *Dædalea Sprucei*, Berk., and *Trametes pictus*, Berk. The rough bark of sheoaks, casuarinas is often covered with the beautiful dark-brown velvety *Polyporus cichoraceus*, Berk. But it is in the scrubs lining the watercourses on the eastern side of the Dividing Range that the greatest variety of the genus *Polyporus* will be seen and conspicuously the Fan fungus *Polyporus flabelliformis*, Fr. and goblet-shaped *P. xanthopus*, Fr., two easily recognised species even from their appropriate specific names. The same may be said of *P. hirsutus*, Fr., whose pileus is usually covered with somewhat soft, scaly hairs. A very abundant kind on scrub-logs is the large white *Lenzites deplanata*, Fr., whose curious hymenium closely resembles that of a *Dædalea*. Though not regarded with much esteem as esculents, yet some species of the tribe *Polyporei* have been, and are used as articles of food in other parts of the world. Generally speaking they are not favorites, but at the same time it might be well to experiment with some of the Australian kinds.

In the close dark scrubs of Queensland one may often meet with logs the tops of which are bordered with the large cups of *Thelephora lamellata*, B. et C. These cups frequently grow one within another, but when seen singly they will often measure from 8 to 10 inches across. Where the ground is soft, formed of a leafy mould the pretty earth-star *Geaster saccata*, Fr., and others will be common, and should the season be warm and wet several species of the tribe *Phalloidei* may be met with, such as the red star, a kind resembling somewhat the sea anemone. This is the *Aseröe rubrum* of Labillardiere. The ball-net *Ileodictyon gracile*, Berk., and the superb new species of *Dictyophora*—*D. multicolor*, B. et Br. Most species of this tribe are attractive to the eye, but

unfortunately they usually possess a most fetid odour. In drying some care is required or both their color and shape will be lost. With the *Ileodictyon* the best mode is to fill the inside of the net with some soft material while the plant is fresh, which may be done by passing cotton wool through the meshes of the net and then placing it in the sun to dry quickly. The other species should be laid upon clean white paper in the hot sun and kept frequently turned to prevent them adhering. By this quick mode of drying the color and also the shape in great measure can be preserved. In the same localities we shall probably meet with several species of *Lentinus* which are tough mushrooms, *L. fasciatus* Br. is one of the most common in Queensland. In form it resembles a wine glass, is of a brownish-light or dark colour, and very shaggy. Its favorite position is on half-rotten logs. These shaggy cups are sometimes large being five or six inches and three or four across the top of cup. But the finest of the genus is probably that found by Mr. Bailey in the scrub at the Gap, Enoggera Creek, near Brisbane. It has since been named *L. cyathus*, by Messrs. Berkely and Broome, and will be found amongst those described by them in the transactions of the Linnean Society, Vol. I., part VI., p. 399. This superb species stands erect like a large wine glass, is about four inches across, the gills are narrow and unbranched, about six inches high. The stem is about seven lines thick. In similar localities logs are often seen decorated with large paper-like lobes of various colors these are species of *Stereum*, a buff colored fungus. Another kind has finger-like lobes and is called by Messrs. Berkeley and Broome *S. radiato-fissum*. It is sure to attract attention in any place where it occurs. At the base of stumps will be noticed the shiny bright species *S. hirsutum*, Fr. The curious form of mycelium called by the botanist *Rhizomorpha Harrimanni*, is often abundant on old timber and is the mycelium of *Xylaria polymorpha* Fr., and *X. rhytidophloia*, Mont., two black club-shaped fungi, the former sometimes two to three inches high.

In speaking of our scrub fungi we must not forget the common Jew's ear, *Hirneola auricula-Judæ*, Berk. Great quantities of it are collected at Tahiti and shipped to China where it is used for soups. It might surely be collected with advantage in both Queensland and New South Wales during wet warm weather, it is very abundant on old timber in our dense scrubs. It is said to fetch in the market when dry about six-pence a pound. Little or no care is required in drying, just placing in the sun and turning now and again for a few days. *Hirneola polytricha* is perhaps the more common in New South Wales and is quite as valuable as an esculent. Use might certainly be made of many of the larger kinds of *Polyporei* in a similar way to that in which several are used in Europe in the manufacture of chest protectors. For this purpose they are cut into thin plates dried and beaten until they become soft. The indigenous kinds likely to become useful in this respect are the large and beautiful *Polyporus lucidus*, Fr., the top of which is highly polished; *P. senex*, Mont., a dull brown kind, but one that grows to a large size (specimens may be often met with in our scrubs from one and a-half to two feet in diameter), and *Dædalea Sprucei*, Berk., a large thick kind much softer than the last and pure white. Before concluding the few brief remarks on our fungi something should be said of those which attack our grasses. These for the most part belong to the Sub-order *Coniomycetes*, and are of quite a different character. They have the spores often naked, terminating in conspicuous threads, the perithecium when present being very delicate and evanescent. They belong also to the tribe *Pucciniæi*. The following are the plants which seem subject to them—*Fimbristylis* a small grass-like sedge on which occurs *Ustilago axicola*, Berk. This in some seasons on wet undrained land is very abundant. *U. carbo*, Tulasne, will be found on the panicles of *Aristida* a three awned speargrass. On the rice-grass *Leersia hexandra*, Sw., which is common near water-courses will be found a new species of *Thecaphora globuligera*, Berk. et Broome. The red rust

Trichobasis rubigo-vera, Lev., is common on *Hemarthria*. The last observation is very important and answers a part of the question as to whence our red rust plague is derived and where it finds a home. If an attentive observation should render us familiar with those plants it affects we might not despair of its eradication. The common black moulds *Cladosporium herbarum*, Lk., which attacks *Ischæmum* and *Paspalum*, and the *Helminthosporium ravenelis*, Curtis, which destroys the panicles of the several species of *Sporobolus* belong to the Sub-order *Hyphomycetes* or floccose fungi with simple or branched filaments and terminal spores.

Many of our readers will be familiar with the large luminous mushroom which is so common at certain seasons about the bases of old gum stumps. Until quite lately we took this fine species for *Agaricus Gardneri*, Berk., but upon careful examination Messrs. Berkeley and Broome find it a new species of *Panus* and from its luminous character have named it *P. incandescens*, it seems to have a wide range. being met with in nearly all parts of Australia. The beauty of the appearance of this kind at night cannot be exaggerated. It is a pale luminous glow which seems to permeate the whole substance except the skin of the cap. The light does not come off on the hand, neither does it emit any unpleasant smell. Some specimens found by one of us at Wallerawang on the Divide, in March 1878, were 12 inches in diameter, and gave a light which was sufficient to enable one to read a newspaper when laid upon it; the kind is said not to be poisonous. Other luminous kinds are noticed by Hooker in the *Journal of Botany*, 1840, Vol. II., p. 426. Probably we have five or six in Australia including the Javanese *Agaricus Gairdneri*. It is as well to note that the common large luminous one is poisonous.

In conclusion we beg to call attention to the very great importance which the study of Fungi possesses for a young country like ours, which depends so much upon its agriculture. Sad experience has already taught us how its prospects may be

injured by blight, mildews, smuts, rusts, &c. Little or nothing is known about the origin and spread of these terrible pests, and it is equally certain that if they were known they would in a measure be provided against. Although by many mycologists the polymorphy of these blights has been doubted, yet experience seem to have decided that a blight of one kind affecting one class of plants may be transformed into a mildew or a rust amongst cereal crops. Certain portions of England were for a long time subject to mildews and rust which farmers, it would seem, but too justly attributed to the influence of certain fungi on the Berberry shrubs near. Experiments were tried and it was found that wheat, rape, and barley sown in the neighbourhood of a berberry bush covered with a fungus called *Aecidium berberidis*, contracted rust immediately after the maturation of the spores of the *Aecidia*. The rust was most abundant where the wind carried the spores. The following year the same observations were repeated; the spores of the *Aecidium* were collected, and applied to some healthy plants of rye, after five or six days these plants were affected with rust, while the remainder of the crop was sound. In 1863 some winter rye was sown round a berberry bush, which in the following year was infested with *Aecidium*, which was mature in the middle of May, when the rye was completely covered with rust. Of the grasses near the bush *Triticum repens*, was most affected.—(See Cook and Berkeley's "*Fungi*," page 200.) It will be easily seen from this fact how important the study of fungi becomes, for in the locality referred to the destruction of the berberry bushes has been the salvation of the crop.

Before giving a list of those fungi which are known to inhabit Queensland and New South Wales, it will be necessary to explain a few technical terms for the use of students who may not have books of reference at hand when using the catalogue.

Fungi are propagated for the most part by very small bodies, called spores. These in two large divisions of the order are

produced upon a fruit-bearing surface called the *Hymenium*. The gills in the common mushroom are the hymenium, the pores in *Boletus* or *Polyporus*.

Now the classification of many families depend upon the character of the hymenium, whether porous or lamellar &c. The bed of fibre from which the fungus springs is called the *mycelium*. The pileus or cap of the fungus is a term which explains itself. In the young stage many fungi are joined by the edge of the stem by a membrane which often remains when the fungus is spread out. This is the veil or *annulus*.

Fungi are divided into two great sections *Sporifera*—spores naked; *Sporidifera*—sporidia in sacs or *asci*. The first section is divided into four sub-orders which will be defined in order as they occur. The first *Hymenomycetes*, in which the hymenium is either exposed from the beginning or in the course of growth.

Of this sub-order there are six tribes, viz. :—

I. AGARICINI—Hymenium lamellose.

II. POLYPOREI—Hymenium porous or tubular.

III. HYDNEI—Hymenium tuberculate.

IV. AURICULARINI—Hymenium even, smooth or rugose.

V. CLAVARIEI—Hymenium superior or unfolding, fungus vertical elevete, branched, rarely lobed.

VI. TREMELLINI—Hymenium generally covering the whole surface, fungus lobed or discoid, gelatinous.

AGARICINI.

Fungi with the hymenium formed into distinct gill-like plates the modification of which assists to distinguish the genera. In the genus *Cantharellus* the gills are replaced by veins which are branched and with an obtuse edge. In *Lenzites* the veins become hard and corky.

AGARICUS, *Linn.*

Fleshy fungi with gill plates, with or without a stem, which may be central or lateral. When no stem is present, the pileus is attached by the upper surface. The genus is divided into five natural groups, according as the color of the spores is white, pink, ferruginous, purple-brown, or black. A very large genus containing over one thousand species. The common Mushroom is the most familiar example.

Sub-genus AMANITA.

Pileus central. Young plant enclosed in a membranous free volva, through which the pileus pushes, with or without a veil. Gills not decurrent on the stem.

A. vaginatus, Bull, var. Brisbane River (Bailey), Feb. 7, 1880.

Top of pileus mouse-colour and somewhat viscid, margin thin and striated or furrowed, without the scales of the allied species, stem split and portions curled giving the appearance of being scaly. Volva free, but closely appressed to stem, base bulbose.

LEPIOTA, *Pers.*

Veil simple, annular, somewhat persistent.

A. procerus, Scop., Enoggera Creek, Queensland, (Bailey)—Port Douglas (Woods).

A. Beckleri, Berk., Clarence River, N.S.W. (Beckler).

A. aspratrus, Berk., Clarence River, N.S.W. (Beckler), Enoggera Creek, Queensland (Bailey).

Sub-genus OMPHALIA, *Pers.*

Pileus fleshy-membranous or when young umbilicated.

A. oniscus, Fr., Gainsford (G. Bowman).

A. umbelliferus, Linn., ? Brisbane River (Bailey).

Sub-genus PLEUROTUS.

Stem out of the centre or lateral.

- A. applicatus*, Batsch., Gainsford, Queensland (E. Bowman).
A. mollis, Schæff., Logan River, (Bailey).
A. Guilfoylei, Berk., Tweed River (Guilfoyle).
A. sordulentus, B. et Br., on logs Taylor's Range, Queensland, a new and beautiful species very like a *Lentinus* (Bailey).

Sub-genus FLAMMULA.

Veil fugacious, gill adnate or decurrent.

- A. Baileyi*, B. et Br., orange colored, on logs near Brisbane (Bailey).
A. sapineus, Fr., yellow-brown, on logs near Brisbane (Bailey).
A. picreus, Fries., Rockhampton, on dead trunks of *Macrozamia*, (Thozet).

Sub-genus NAUCORIA.

Pileus fleshy, membranous, flattish, squamulose, small; lamellæ cinnamon-colored.

- A. Bowmani*, Berk., Herbert Creek, Queensland (Bowman).
A. anguineus, Fries., Rockhampton (Thozet.)

Sub-genus PSALLIOTA.

Stem with a ring formed by the veil.

- A. campestris*, Linn., common mushroom found everywhere.
A. versipes, B. et Br., a new species found amongst the roots of Bamboo, in the Brisbane Botanical Gardens. A large species somewhat resembling *A. campestris*, but with a much thicker stipes, the gills also are fasciculated in a very peculiar manner and the whole plant has a strong smell of garlic.

Sub-genus PSATHYRELLA.

- A. disseminatus*, P., Enoggera Creek. (Bailey). This is a small delicate species often found in great abundance on old rubbish in damp places,

- A. hiascens*, Fries., Rockhampton, (A. Thozet.)
- A. (Lepiota) leontoderes*, B. et Br., Gracemere O'Shanessy, F. de Thümen, publicata, deter. C. Kalcbrenner, as also the nine following.
- A. (Lepiota) clypeolarius*, Bull, Gracemere O'Shanessy.
- A. (Lepiota) granulosa*, Fries., Rockhampton, (Thozet.)
- A. (Mycena) silenus*, B. et Br., sent to Baron Mueller from North Australia by Armit.
- A. (Omphalea) scyphiformis*, Fries., amongst grass, Gracemere O'Shanessy.
- A. (Pleurotus) illuminans*, Muller, Rockhampton, (Thozet).
- A. (Pleurotus) corticatus*, Fries., Gracemere O'Shanessy.
- A. (Hebeloma) nudipes*, Fries., Gracemere O'Shanessy.
- A. (Panæolus) campanulatus*, Linn., Parramatta. Jour. Linn. Soc., Vol. 16.

COPRINUS, *Persoon*.

Gill-bearing fungi remarkable for their dark spores and deliquescent pileus, gills adhering together, growth and decay extremely rapid, on dung hot-beds, some yield a very dark juice which is used for ink, and some are edible.

- C. stercoreus*, Fr., in many parts of N. S. W. and Queensland.
- C. ephemerus*, Fr., Bull, t. 128, Gainsford, Queensland (Bowman).

HYGROPHORUS, *Fries*.

This genus is separated from *Agaricus* on account of the waxy not membranous gills, and granular intermediate substance.

- H. miniatus*, Fr., a small, beautiful deep red species very abundant in open pastures during damp weather in Queensland (Bailey)
- H. porphyrinus*, B. et Br., pileus and stipes purple, gills white, a new species found on open pasture near Brisbane (Bailey.)

MARASIMUS, *Fries.*

Habit of *Agaricus*. Pileus fleshy or membranous, hymenium dry, gills thick, tough with acute edges.

M. confertus, B. and Br., a delicate fungus often found crowded in Queensland and New South Wales river scrubs.

M. rotula, Fries., on dead wood, Gracemere O'Shanessy.

M. rufo-pallidus, Kalchbrenner, published by F. de Thümen, Gracemere O'Shanessy.

M. rhyticeps, Kalchb., Rockhampton on stems of *Passiflora*, (Thozet.)

M. ealobates, Kalchb., Rockhampton, on old leaves of *Bourgainvillea* (Thozet.)

M. aciculæformis, B. and Br., Gracemere on old decayed logs O'Shanessy.

M. primulinus, Berk., Parramatta, Jour. Linn. Soc. Vol. 16.

M. opacus, Berk. and C., Parramatta, Jour. Linn. Soc., Vol. 16.

LACTARIUS, *Fries.*

Trama vesicular, gills lactescent, whence the generic name.

L. subtomentosus, B. and Rac., Parramatta, Jour. Linn. Soc., V. 16.

CANTHARELLUS, *Vide supra.*

C. concinnus, Berk., Parramatta, Jour. Linn. Soc., Vol. 16.

C. cibarius, Fries., Parramatta, Jour. Linn. Soc., Vol. 16.

C. aurantiacus, Fries., Rockhampton, (Thozet.)

RUSSULA, *Fries.*

This is a genus of bright colored mushrooms. Gills brittle and entire, either white or of an apricot color, according to color of spores. Some are extremely acrid, others mild and esculent, and on the continent of Europe highly esteemed.

R. emetica, Fr., Elizabeth Bay, (Tenison-Woods) a very poisonous species.

R. rubra, Fr., Brisbane River, (Bailey).

R. fragilis, Fr., Herbert Creek, (E. H. Bowman).

LENTINUS, *Fries.*

- Habit of *Agaricus*. Pileus leathery, hard. Gills tough, edges often lacerated.

L. fasciatus, Berk., a beautiful shaggy fungus on wood in dense scrubs, Parramatta (Woods), Rockhampton (Bowman), Trinity Bay and Brisbane River (Bailey). This species varies much in color, from very light to dark brown, (F.M.B.)

L. pergamenus, Fries., Gracemere O'Shanessy.

L. subundus, Berk., sent to Baron Mueller by Armit from North Queensland.

L. Lecomtei, Fr., shaggy like the last, on a shorter usually excentric stipes, Tweed River (Guilfoyle), Southern Queensland (Bailey).

L. exilis, Kl., a very beautiful cup-formed species, color light, not shaggy, Trinity Bay (Bailey), Daintree (Woods). Daintree specimen large.

L. vulpinus, Fr., Tweed River (Guilfoyle).

L. Dunalii, Fr., Trinity Bay, (Bailey).

L. cyathus, B. et Br., a very fine species. Dense scrubs, Enoggera Creek, (Bailey). New species.

L. subdulces, Berk., on logs, Taylor's Range (Bailey).

PANUS, *Fries.*

Pileus tough but fleshy, gills unequal, edges entire, acute.

P. incandescens, B. et Br., (*n. sp.*) the large luminous mushroom of Queensland and South Australia (Bailey).

P. viscidulus, B. et Br., (*n. sp.*) top of pileus somewhat of a slate color and very clammy, while fresh the gills white, on timber Brisbane River scrubs (Bailey), New South Wales (Woods).

XEROTES, *Fries.*

Gills distant, entire, obtuse, whole plant of delicate texture and dry, whence the name. On decaying logs.

- X. Rawakensis*, Fr., Enoggera, near Brisbane, (Bailey).
X. proximus, B. et Br., Brisbane River (Bailey).
X. fulvus, B. et Br., Enoggera (Bailey).

PAXILLUS, *Fries.*

Gills persistent, distinct from the hymenophorum.

- P. Muelleri*, Berk., Parramatta, Jour. Linn. Soc., Vol. 16.

SCHIZOPHYLLUM, *Fries.*

Pileus dry. Gills branched in a flabellate manner, split longitudinally.

- S. commune*, Fr., color of cap grey, gill brownish, very abundant ubiquitous species, on timber, Tweed River (Guilfoyle), Brisbane River (Prentice), Trinity Bay (Bailey), Daintree (Woods).

LENZITES, *Fries.*

Pileus corky. Gills firm, often anastomosing, with entire edges.

- L. betulina*, Fr., Main Range, Queensland (Bailey).
L. Palisotii, Fries, New South Wales (Mueller.)
L. Berkeleyi, Lév., Brisbane River (Thozet).
L. deplanata, Fr., in all the scrubs about Brisbane, very abundant and large at Maroochie (Bailey), Daintree (Woods).
L. faventinus, Cald., Enoggera (Bailey).
L. striata, Fr., on timber, Three Mile Scrub (Bailey), Port Douglas (Woods).
L. striata, var minor. Herbert's Creek, Rockhampton, Jour. Linn. Soc., Vol. 13, bot. p. 161.

Tribe POLYPOREI.

Hymenium lining the cavity of tubes or pores.

STROBILOMYCES, *Berk.*

- Very like a *Boletus*. Spores globose or broadly elliptic and rough.
S. nigricans, Berk., Ithaca Creek (Bailey).

BOLETUS, *Linn.*

Hymenium tubes separable from each other as well as from the pileus. Stipites stout. Some poisonous, others thought excellent food, and preferred in some places to the Mushroom. The most poisonous kinds are said to be of a red color about the orifice of the tubes. These fungi often change color almost instantaneously upon being broken, from white or yellow to blue.

B. pachypus, Fr., forest land Brisbane River (Bailey).

B. subtomentosus, Linn, Parramatta, Jour. Linn. Soc., Vol. 16.

B. ananæops, Berk., Parramatta, Jour. Linn. Soc., Vol. 16.

POLYPORUS, *Fries.*

A very large genus of pore-bearing fungi. The tubes not separating from each other, or from the pileus distinguishes this genus from *Boletus*. The species are often large, hard and beautiful, one is said to be worshiped in Guinea, and several are of commercial value in various ways.

Section MESOPUS.

Stem distinct, simple, lateral or nearly central. Substance corky or fleshy.

P. arcularius, Fries, stipes central, smooth pores rhomboid. Brisbane district, very common on old timber (Bailey), Rockhampton (Bowman), Daintree and Endeavour Rivers (Woods).

P. oblectans, Berk., Herbert's Creek (Bowman).

P. Armitii, Kalchbrenner, Fragm. Fascs. xc., North Australia (Armit).

P. xanthopus, Fr., infundibuliform on yellow stems, Tweed River (Guilfoyle), Brisbane River, and Trinity Bay (Bailey), Daintree River (Woods), Cape York (E. Daemel).

- P. lucidus*, Fr., pileus polished, stem on one side, central, or altogether wanting, Rockhampton (Bowman), Daintree (Woods), Brisbane River, Maroochie and Trinity Bay (Bailey)
- P. luteo-nitidus*, Berk., Maroochie (Bailey).
- P. quadrans*, Berk. et Br., Enoggera (Bailey).
- P. dictyopus*, Rostk., on the ground Enoggera (Bailey).

SECTION PLEUROPUS.

Stem lateral, simple, of usually hard substance.

- P. picipes*, Fr., Redland Bay, Queensland (A. J. Boyd).
- P. sanguineus*, Fr., often in thin deep-red fan-shaped flakes. New England (C. Stuart), Parramatta (? Woolls), Tweed River (Guilfoyle), Brisbane River and Maroochie (Bailey), Daintree River (Woods).
- P. luteus*, Nees, very like *P. xanthopus*, but usually thicker in substance and more flabelliform, Tweed River (Guilfoyle), Brisbane River (Bailey).
- P. flabelliformis*, Kl., pileus dark, zonate, clothed with soft velvety hairs. Tweed River (Guilfoyle), Brisbane River, Maroochie (Bailey).
- P. affinis*, Fr., is a variety of the previous species.
- P. cinnabarinus*, Fr., pileus corky, slightly convex, somewhat zoned, hymen. scarlet, Brisbane River (Bailey), Port Douglas (Woods).
- P. fuscolineatus*, B. et Br., pileus thin, marked by very slender lines radiating from the centre to the edge. Brisbane River (Bailey).
- P. rhipidium*, Berk., small white species, Enoggera River (Bailey).
- P. platotis*, B. et Br., whole plant fragile, margins deeply sinuate and thick. Brisbane River (Bailey).
- P. dilatatus*, Berk., Tweed River (Guilfoyle).

- P. (Anodermei) funalis*, Fr., soft white fungus, Trinity Bay (Bailey).
- P. (Anodermei) corrivalis*, Berk., imbricated, somewhat conchiform
Brisbane River (Bailey), Port Douglas (Woods).
- P. citro-aurantius*, B. et Br., a most peculiar kind, when dried
resembling candid orange-peel, substance of fungus like
that of *P. arcularius* soft leathery, the pores falling together
in drying and turning a dark color, its habit is much like
that of *P. corrivalis*, forming imbricate masses on wood
Enoggera (Bailey).
- P. fructicum*, B. et C., a soft spongy brown fungus, on twigs of
trees. Brisbane River (Bancroft), Trinity Bay (Bailey).
- P. (Plocodermei) rubidus*, Berk., pileus thick, pinkish. Maroochie
Brisbane River (Bailey), Port Douglas and Liverpool Ranges
(Woods).
- P. (Plocodermei) radiatus*, Berk., Taylor's Range (Bailey).
- P. (Anodermei) fœdatus*, Berk., pileus three inches across, one and
a-half to two inches long; pores 1/96 inch in diameter. Cape
York, Journals of the Linn. Society, Vol. 16.
- P. (Anodermei) tephronotus*, Berk., Parramatta, Journal Linnean
Soc., Vol. 16.
- P. (Anodermei) ochroleucus*, Berk., Parramatta, Journal Linnean
Soc., Vol. 16.
- P. (Anodermei) semidigitaliformis*, Berk., Parramatta, Jour. Linn.
Soc., Vol. 16.
- P. (Pleuropus) rugosus*, Nees, Parramatta, Journal of Linn. Soc.,
Vol. 16.
- P. (Pleuropus) peroxydatus*, Berk., color of pileus like that of per
oxide of iron. Parramatta, Journal of Linn. Soc., Vol. 16.
- P. (Placodermei) portentosus*, Berk., Parramatta, Journal of Linn.
Soc., Vol. 16.
- P. (Placodermei) australis*, Fries, Parramatta, Journal of Linnean
Society, Vol. 16.



- P. (Placodermei) incrassatus*, Berk., Cape York, Journal of Linn. Society, Vol. 16.
- P. (Resupinati) obliquus*, Fries., Parramatta, Journal of Linnean Society, Vol. 16.
- P. galloparonis*, B. et Br., *n. sp.*, Enoggera (Bailey).
- P. zonalis*, Berk., on wet wood, Brisbane River (Bailey).
- P. ignarius*, Fr., very large, hard, brown, very common on *Casuarinas*, Queensland (Bailey), New South Wales (Woods).
- P. senex*, Mont., Brisbane River, Trinity Bay (Bailey), Daintree (Woods). This is one of the largest of Australian fungi.
- P. melanopus*, Mont., a small dark fungus, on dead trees, Taylor's Range (Bailey).
- P. Persoonii*, Fr., Tweed River, (Guilfoyle).
- P. cinereo-fuscus*, Currey, Trinity Bay (Bailey).
- P. scruposus*, Fr., Enoggera Creek (Bailey).
- P. libum*, Berk., Tweed River (Guilfoyle).
- P. cichoraceus*, Berk., a dark, glossy brown, velvety fungus, Brisbane River (Bailey).
- P. luteo-olivaceus*, B. et Br., Brisbane River (Bailey).
- P. hirsutus*, Fr., pileus hairy, Clarence River (Dr. Beckler), Tweed River (Guilfoyle), Brisbane River (Bailey).
- P. occidentalis*, Kl., a large, thin, hairy or scaly capped species of grey or brownish color. Enoggera Creek (Bailey).
- P. lilacino-gilvus*, P., hymenium of a beautiful pink color, Enoggera Creek (Bailey).
- P. elongatus*, Berk., a fragile, fan shaped, white species, New England (C. Stuart), on logs Enoggera Creek (Bailey), Maroochie (Bailey).
- P. venustus*, Berk., pileus very scaly, often dark, pores irregular shaped, sometimes purplish, on old timber, Enoggera Creek (Bailey).

- P. Peradeniæ*, B. et Br., pileus somewhat zoned, soft silky, usually lemon-colored, Pine River (Black), near Ipswich (Miss Campbell), Brisbane River (Bailey).
- P. compressus*, Berk., pileus somewhat scaly yellowish, thick often, found on logs in open forests, fences, &c., Brisbane River (Bailey).
- P. ferruginosus*, Fries. This species forms often large, close, brown patches, on old timber, Brisbane River (Bailey).
- P. Broomei*, Rabenh., a white species often found in patches, one foot long, and six inches wide, on logs Enoggera Creek (Bailey).
- P. calceus*, B. et Br., this species forms large, thin, flakes on the fallen timber, Trinity Bay (Bailey).
- P. rimosus*, Fries, (Mueller).
- P. Floridanus*, Berk., a skin-like fungus, on hard timber, Enoggera Creek (Bailey).
- P. flavus*, Jungh., New South Wales, (Mueller).
- P. fulvus*, Fries, New South Wales (Mueller).
- P. biretum*, Kalchb., New South Wales (Mueller).
- P. vaporarius*, Fries, Gracemere (O'Shanessy).
- P. xerampelinus*, Kalchb., (*n. sp.*) Rockhampton (A. Thozet).
- P. murinus*, Kalchb., (*n. sp.*) Rockhampton (A. Thozet).
- P. chrysoleucus*, Kalchb., Rockhampton (A. Thozet).
- P. Eucalypti*, Kalchb., on stems of *Eucalypts* Rockhampton (Thozet).
- P. salicinus*, Fries, on logs, Rockhampton (A. Thozet).
- P. placodes*, Kalchb., (*n. sp.*) Rockhampton (Thozet.)
- P. chilensis*, Fries, Rockhampton (Thozet).
- P. gibbosus*, Nees, Rockhampton (Thozet).
- P. Tricholoma*, Mntg., Gracemere (O'Shanessy and A. Thozet).
- P. mycelodes*, Kalchb., (*n. sp.*) Gracemere (O'Shanessy).

TRAMETES, *Fries*.

This is a genus very near to *Polyporus*, differing in the trama—substance separating the pores—being thick, and continuous without change from the pileus.

- T. pyrrochreas*, Berk., pileus somewhat thick, banded, velvety, substance like *Amadou*. Herbert's Creek, Journ. Linn. Soc., botany, Vol. XIII., 164, 1873.
- T. occidentalis*, Fries, Parramatta (Moseley).
- T. versatilis*, Berk., Herbert's Creek. (*l. c.*)
- T. mollis*, Fries, Parramatta (Moseley).
- T. acupunctatus*, A., Herbert's Creek (E. M. Bowman *l. c.*)
- T. phellinus*, Berk., New England (*l. c.*)
- T. devexa*, Berk., often forming long strips on old timber, color various, pileus velvety, Tweed River (Guilfoyle), throughout Queensland (Bailey).
- T. lactineus*, Berk., New England, Journ. Linn. Soc., botany, Vol. XIII., p. 165.
- T. colliculosa*, Berk., New England (*l. c.*)
- T. rigida*, Berk., closely resembling *T. devexa*, pileus usually much wider and more hairy, Tweed River (Guilfoyle), throughout Queensland (Bailey and Woods).
- T. umbrinus*, Currey, Brisbane River (Bailey).
- T. pictus*, Berk., pileus clouded or obscurely zoned by a darker color, sometimes shortly stipitate on hard forest timber, Brisbane River (Bailey), Endeavour River (Woods).
- T. perennis*, Fr., a very pretty species found among grass on stony ridges about Brisbane (Bailey).

DÆDALEA, *Persoon*.

Pores often sinuous or labyrinthiform, but variable; sometimes resembling a *Lenzites*, at other times a *Tramites*.

- D. tenuis*, Berk., Cape York, Journ. Linn. Soc., Vol. XIII., bot. page 165.
- D. Bowmani*, Berk., Herbert's Creek (Bowman).
- D. aspera*, Fries, ? a large white species, pores large sinuous, Enoggera Creek (Bailey),
- D. Sprucei*, Berk., a very large, thick, white fungus, with small pores. Brisbane, and most of the South Queensland scrubs on stumps and logs (Bailey), Daintree (Woods).
- D. glabrescens*, Berkeley, Parramatta (Moseley).

HEXAGONA, *Fr.*

Pores usually large and angular, somewhat resembling the cells of a honeycomb.

- H. tenuis*, Fr., Cape York (E. Daemel).
- H. polygramma*, Mont., on mangroves, Trinity Bay (Bailey).
- H. Muelleri*, Berk., New England, Journal Linnean Society, Vol. XIII., 166.
- H. tenuis*, Fries, Cape York, Journ. Linn. Soc., Vol. XVI.
- H. erinigera*, Fries, North Australia (Armit).

FAVOLUS, *Fries.*

Pileus fleshy, flexible, hymenium reticulate, pores radiating elongated.

- F. squamiger*, Berk., pileus umbilicate, New England, Journal of Linn. Soc., Vol. XIII., 166.
- F. cœspitosus*, Berk., densely tufted, stems connected at the base, over 50 in a tuft, two inches or more high, Clarence River (Dr. Beckler, *l. c.*)

LASCHIA, *Fries.*

Pileus fleshy, but very cellular, the top sticky when fresh, hymenium reticulate, very similar to *Favolus*.

- L. Thwaitesii*, B. et Br., a small, white species found on the bark of *Wormia alata*, at Trinity Bay (Bailey), Maroochie (Bailey).
- L. pustulata*, B. et Br., on scrub logs, Enoggera (Bailey).
- L. tremellosa*, Fr., Tweed River (Guilfoyle).
- L. cæspitosa*, Berk., perhaps identical with *F. cæspitosa*, mentioned before, but the plant, never so large in Queensland as the specimens of that from the Clarence, are described in the Journal above quoted, Enoggera (Bailey). The species are very similar, and probably only forms of one.

MERULINUS, *Haker.*

Hymenium waxy, soft, formed of porous reticulations or sinuous toothed depressions. To this genus belong those fungi most destructive to timber, as dry rot &c. No species in our collection yet determined.

Tribe HYDNEI.

Hymenium not lining pores or tubes, but spread over the surface of spines or papillæ.

HYDNUM, *Linn.*

Pileus fleshy or hard, hymenium spread over the surface of awl-shaped or compressed spines that are free at the base, some species are said to be excellent when cooked.

Section APUS.

Pileus sessile.

- H. Muelleri*, Berk., hymenium spines yellow, long and slender, Tweed River (Guilfoyle).
- H. (mesopus) nigrum*, Fries, Parramatta (Mosely).
- H. (resupinatum) xanthum*, B. and C., Parramatta (Mosely).
- H. gilvum*, Berk., pileus somewhat fan-shaped, spines of hymenium somewhat acute, the whole yellow, Enoggera Creek (Bailey).

H. merulioides, B. et Br., (*n. s.*) hymenium a rich orange color, the rest white, found on the damp timber of a bridge. Ithaca Creek (Bailey.)

IRPEX, *Fries.*

Hymenium with firm coriaceous acute teeth, disposed in rows.

I. flavus, Kl., this forms large patches on old timber, is of a leathery consistence and of a beautiful yellow color, Herbert's Creek (Bowman), Rockingham Bay (Dallachy), Trinity Bay (Bailey), Daintree (Woods), near Ipswich (Miss. F. M. Campbell).

I. zonatus, Fr., Main Ranges, Queensland (Bailey).

SISTOTREMA, *Fries.*

Having the habit and appearance of *Irpex*. The gill-like teeth bearing the hymenium.

S. irpicinum, B. et Br., this new species forms large irregular patches on old timber in dense scrubs, at first sight one might mistake it for *P. Broomei*, but on examination the hymenium will be found toothed like an *Irpex*, to which it is closely allied. Enoggera Creek (Bailey).

RADULUM, *Fr.*

This genus connects *Irpex* and *Sistotrema* with *Hydnum*.

R. ? *sp. nov.*, found on an old Peach tree, Brisbane (Bailey).

PHLEBIA, *Fries.*

These are skin-like fungi found on damp timber. Hymenium sub-gelatinous, spread over persistent veins.

P. radiata, Berk., Ithaca Creek (Bailey).

AURICULARINI.

Hymenium not prickly or tubular, but forming obscure folds or even.

THELEPHORA, *Fries*,

Hymenium tough, at length rigid, costate, striate, or papillose.

T. pedicellata, Schewin. This forms lichen-like patches on the boughs of scrub trees and bushes, and is of a brown color, Enoggera Creek (Bailey).

T. dendritica, Fr., Clarence River, Journ. Linn. Soc., Bot., Vol. XIII., p. 167.

T. congesta, Berk., Rockhampton (Bowman).

T. lamellata, B. et C., a very large goblet-formed fungus found on old logs, Maroochie, Queensland (Bailey).

Cladoderis australis, Kalchb., New South Wales, (Mueller).

STEREUM, *Fries*.

Pileus coriaceous often soft, velvety, hymenium even, stiff fungus whence the name from *stereos* stiff, Gr.

S. nitidulum, Berk., in wet seasons this species often attacks the roots of grass in damp localities. The fungus is of itself very pretty, being in the form of cups, zonate and glossy, Brisbane River (Bailey).

S. elegans, Fr., Queensland (Bowman).

S. lobatum, Fr., pileus rigid, undulate, velvety above the hymenium of a light brown, common on the dead timber of scrubs, Cape York (Daemel), Daintree (Woods), Brisbane River (Bailey), Tweed River (Guilfoyle), New England (C. Stuart).

S. hirsutum, Fr., pileus strigose-hirsute, often zoned, hymenium bright yellow, New England (C. Stuart), Brisbane River (Bailey).

S. Schomburgkii, Berk., Maroochie, on old timber (Bailey).

S. prolificans, Berk., Cape York, Parramatta (Moseley).

S. illudens, Berk., Parramatta, Journal Linn. Soc., Vol. 16.

S. radiato-fissum, B. et Br., pileus glossy, hairy, whole plans cut to the base into digitate lobes, on logs Taylor's Range (Bailey), a new and beautiful species.

- S. ostrea*, Nees., Rockhampton, (Thozet.)
S. leuteo-badium, Fries., New South Wales (Mueller).
S. striatum, Fries., New South Wales (Mueller).

HYMENOCILETE, *Lév.*

Coriaceous, dry. Hymenium even, beset with short, stiff, colored bristles.

- H. cacao*, Berk., a thin skin-like fungus, mostly found on the small branches of trees, Brisbane River (Bailey).
H. rigidula, Berk., New South Wales (Mueller.)
H. tenuissima, Berk., Brisbane River (Bailey), we find no difference in these two *Hymenochete*, they are beautiful forms of fungi.

CORTICIUM, *Fries.*

These fungi are distinguished from *Stereum* and *Thelephora* by their more tender hymenium, they are usually found on the bark of trees, hence the name from *cortex* bark.

- C. nudum*, Fries., on orange trees, Rockhampton (Thozet).
C. læve, Fr., membranous, smooth, hymenium pinkish, Brisbane River (Bailey).
C. incarnatum, Fr., somewhat flesh-colored, skin-like patches on bark of scrub trees, Brisbane River (Bailey).
C. olivaceum, Fr., on old bamboo Brisbane (Bailey).
C. arachnoideum, Berk., coating the twigs of scrub trees, Brisbane River (Bailey).
C. cæruleum, Fr., Clarence and Tweed Rivers (Guilfoyle).

DICTYONEMA, *Persoon.*

Hymenium breaking up into little fragments so as to exhibit the appearance of little parasitic *Pezizæ*.

- D. æruginosum*, Nees., Rockingham Bay, (Dallachy).

GUEPINIA, *Fries.*

Pileus cartilaginous, or almost gelatinous, folded or twisted. Hymenium distinct, inferior or at first superior, unchanged, persistent, bright colored fungi.

G. spatularia, Fr., small orange-yellow fungus on fences, Herbert's Creek, (Bowman), Trinity Bay and Brisbane River (Bailey), Endeavour River (Woods).

HYPONCHNUS, *Fries.*

H. rubro-cinctus, Phr., on bark of trees Brisbane River (Bailey).

AURICULARIA, *Fries.*

Hymenium irregularly and distantly folded, gelatinous when wet, different in substance from the pileus.

A. lobata, Sommf., on damp logs in thick scrub Brisbane River (Bailey).

A. mesentrica, Bull, Enoggera Creek (Bailey).

A. albicans, A., a brilliant species, Herbert's Creek, Journal of Linn. Soc., Botany, Vol. XIII., p. 170.

Tribe CLAVARIEI.

Usually erect fungi, clavate or terete. Hymenium extending over the apex of the plant, even or wrinkled.

CLAVARIA, *Linn.*

Branching erect fungi, or various colors and very fleshy.

C. botrytis, P., Parramatta (W. Woolls), New England (C. Stuart)

C. argillacea, Fr., var. Brisbane River (Bailey).

C. stricta, P., Toowoomba (C. H. Hartmann).

C. rugosa, Bull, Brisbane River (Bailey).

C. ? fastigiata, DC., Brisbane River (Bailey).

C. flava, Schæff., Parramatta, Journ. Linn. Soc., Vol. 16.

C. aurea, Schaff., Parramatta, Jour. cit.

LACHNOCLADIUM, *Berk.*

L. furcellatum, Lév. This is a most beautiful coral-like fungus found on old scrub timber in the tropics in large masses, color white or cream, Trinity Bay (Bailey)'

TREMELLA, *Fries.*

Gelatinous fungi of various forms, often lobed.

Tremella lutescens, Persoon, Parramatta, (Mosely).

HIRNEOLA, *Fries.*

Gelatinous cup or ear-shaped, horny when dry.

H. auricula-Judæ, Berk., Jew's ear; this species is largely used in China as food.

H. polytricha, Mont., differing from the last in the hairy pileus. Is the common form in Port Jackson, and all along the East Coast.*

H. rufa, Berk., Cape York, (Mosely), Journ. Linn. Soc., Vol. 16.

Sub-order II., GASTEROMYCETES.

Hymenium concealed within the substance of the plant, exposed only by the rupture or decay of its walls (peridium) consisting of closely packed cells, of which the fertile bear naked spores on distinct spicules.

Tribe HYPOGÆA.

Hymenium resembling the crumbs of bread, sub-terrestrial in habit, some have a distinct peridium while others are totally destitute of any covering. They differ from real truffles in the fruit consisting of naked spores. This tribe of fungi are most anxiously inquired after by European Mycologists from Australia but as yet few have been collected.

HYDNANGIUM, *Wallr.*

Peridium fleshy or membranaceous, sterile, base none. Trama vesicular. Cells at first empty, then filled with echinulate spores.

H. australiense, B. et Berk., (*n. sp.*) a redish, fleshy puff-ball-like fungus, very rare, Sandy Creek, Taylor's Range (Bailey).

* *Hirneola polytricha*, is also found in New Zealand where it became an article of export for the Chinese market. It is used to thicken soup.

Tribe PHALLOIDEI.

Young plants enclosed in a gelatinous globular volva, which bursting allows the plant to assume its ultimate form; hymenium melting down with the spores into an olivaceous, often fœtid semifluid mass.

DICTYOPHORA, *Fries.*

Spores enclosed in a kind of net work.

D. multicolor, B. et Br., (*n. sp.*) this remarkably handsome fungus attains the height of six or eight inches, is richly colored, and adorned with a long netted veil, reaching half-way down its stipes. Plant rare as yet, only having been met with in one locality, Kedron Brook by Mrs. England.

D. merulina, Berk., Rockingham Bay, Journ. Linn. Soc., Vol. 13, Bot. 172.

PHALLUS, *Linn.*

Pileus conical, perforated at the apex, deeply pitted.

P. calyptratus, B. et Br., part of volva adhering to the pileus gives a cap-like appearance to this fungus. Amongst grass near Brisbane (Bailey).

P. , ? *sp. n.* pileus one and a-half inch broad, orange, stipes lemon, and volva white, scent heavy, but not very disagreeable, Brisbane (Thos. Weedon).

ASEROE, *Labill.*,

Pileus divided at the summit into radiating, simple or forked arms.

A. rubra, Labill., pileus red, resembling somewhat in form a starfish, New England (C: Stuart), Brisbane River (Mrs. Coxen).

CLATHRUS, *Mich.*

Beautiful netted fungus resembling *Ileodictyon*.

C. crispus, Turp., amongst grass, Rockingham Bay, Journ. Linn. Soc., Bot. Vol. XIII., p. 172.

C. pusillus, Berk., Wide Bay (Dr. E. F. Parker).

ILEODICTYON, *Tulasne*.

Pileus forming a globose network with soft corrugated branches.
I. gracile, Berk., Net-ball fungus, Brisbane River (Bailey).

Tribe TRICHOGASTRES.

Usually globose dry fungi, Hymenium enclosed in a single or double peridium (coat), drying up into a dusty mass of microscopic threads and spores. Puff-balls.

GEASTER, *Micheli*.

Peridium double, persistent, the outer splitting from the base to the apex into segments, which spread out like a star; the nucleus bursting by a pore at the apex.

G. minimus, Schw., small earth star, Rockampton (Bowman), Parramatta, (Mosely).

G. saccatus, Fr., Clarence River, (Dr. Beckley), Mount Gowrie (Bailey).

G. striatus, DC., var. minor Mount Gowrie (Bailey).

G. laginæformis, Vitt., Brisbane River (Bailey).

BOVISTA, *Dillenius*.

Large puff-balls. Peridium double, persistent forming a bark-like paper, which shells off from the nucleus—capillitium. The nucleus composed of a mass of brown filaments, and pedicelled spores.

B. lilacina, Mont. et Bert., dark puff-ball, top often flat. Enoggera and Cunningham's Gap, Queensland (Bailey).

B. Muelleri, Berk., Herbert's Creek (Bowman).

LYCOPERDON, *Tournefort*.

Peridium often broken into scales or warts. Nucleus soft and dense, compact at the base.

L. pusillum, Fries, Barron River (Bailey).

L. gemmatum, Fries, a soft brownish puff-ball, found in scrubs. Logan River (Bailey).

L. brasiliensis, Fr., a small species found on old timber in scrubs Brisbane River, is perhaps this species (Bailey).

SCLERODERMA, *Persoon*.

Somewhat globose, sessile or stipitate. Peridium firm, hard with an inner bark, bursting irregularly. Spores large granulated.

S. bovista, Fr., common in Southern Queensland, (Bailey).

S. pandanaceum, Muell., Rockingham Bay (J. Dallachy).

S. geaster. Fr., Herbert's Creek, Journal of Linn. Soc., Bot., Vol. XIII., p. 171.

S. strobilinum, Kalchb., Rockhampton (Thozet).

MYCENASTRUM, *Desv.*

Peridium thick, like shoe-leather, splitting at maturity in a somewhat stellate manner.

M. corium, Berk., a large hard puff-ball, Mount Gowrie, Darling Downs (Bailey).

POLYSACCUM, *Desv.*

A genus of hard puff-balls. within the outer peridium containing a multitude of small peridia.

P. olivaceum, Fr., ridges about Brisbane (Bailey). spores yellow. Liverpool Plains, Murrurundi, Bathurst (Woods).

P. pisocarpium, Fr., Brisbane River (Bailey), spores brown-ferruginous.

CRUCIBULUM, *Tulasne*.

Habit of *Cyathus*. Peridium globose at first, afterwards cupped and obconic, of a uniform spongy, fibrous fitted consistence. Orifice closed by a flat furfuraceous cover of same color, sporangia plane attached to a nipple-like tubercle by a long cord.

C. vulgare, Tul., peridium dirty-yellow, finally white spores, minute, ovate, Gracemere, Rockhampton (O'Shanessy).

MYXOGASTRES.

Usually small fungi, form various, pulpy while young. Peridium usually globose, single or double, containing a dusty mass of flocci, mixed with spores.

Didymium, *Schrader*.

Peridium scaly, mealy or tomentose, bursting irregularly.

D. farineum, Fr., on decaying fruit, Brisbane (Bailey).

Stemonitis, *Gleditsch*.

Peridium very delicate, single and deciduous, filled with a beautiful network of threads, connected with the stem and penetrating more or less the whole mass.

S. fusca, Roth., a common kind on damp timber, grows in minute tufts of cylindrical peridia, supported on dark bristle-like stems, these are often persistent after the network has fallen away, Brisbane Scrubs (Bailey), S. Tasmania (Woods).

Physarum, *Pers*.

Peridium bladdery, mostly stipitate and subglobose.

P. nutans, P., peridium white, stem red, Crocodile Creek, Journ. Linn. Soc., XIII., p. 172.

Arcyria, *Hill*.

Peridium fugacious except a small portion at the base, cylindrical net-like fungus.

A. nutans, Fr., pale-yellow, nodding net fungus on wood, Brisbane Scrubs (Bailey).

A. cinerea, Fr., grey net fungus on wood, Brisbane Scrubs (Bailey)

A. punicea, Pers., dull purple net fungus, on wood, Brisbane Scrubs (Bailey).

Tribe NIDULARIACEI.

Peridium of various form and bursting at the apex horizontally containing separate sporangia, in which the spores are formed.

Cyathus, *Persoon*.

Fungi like diminutive birds-nests. Peridium of thin closely connected membranes, at length bursting at the apex, and the

orifice closed by a white membrane. Sporangia plane, umbilicate attached by an elastic cord to the peridium.

C. Lesueurii, Tul., on dung Parramatta (Woolfs).

C. intermedius, Tul., Herbert's Creek, Queensland, (Ed. Bowman).

C. campanulatus, Corda., Brisbane (Bailey).

C. fimetarius, DC., on horse dung, Brisbane River (Bailey).

Sub-order III.—COMOMYCETES.

Minute fungi, including the rusts &c. Hymenium 0. Spores abundant, conspicuous, often large, surrounded by a perithecium or naked, terminating in conspicuous threads. Threads often arising from a creeping mycelium. Peridium—perithecium—when present very delicate and evanescent. In this suborder will be found the numerous parasitic species, which affect the living organs of plants and cause such mischief to corn and other crops by exhausting the energies of the mother plant, and thus preventing the full development of the seed &c.

Tribe SPHERONEMEI.

Perithecium more or less distinct.

PHOMA, *Fries.*

A minute fungus, forming pustules on wood, leaves, &c. Perithecium subglobose or punctiform, discharging minute simple spores by a small orifice at the apex.

P. rosarum, Dur. et Mont., on rose aculei, Bulimba, Brisbane River (Mrs. C. Coxen).

TORULACEI.

Perithecium altogether wanting, spores compound, moniliform or raising from repeated division—rarely reduced to a single cell. Mycelium scarcely apparent.

TORULA, *Pers.*

A fungus forming compact, thick, beds on the leaves of plants. *T. herbarum*, Lk., on *Acacia phyllodia*, Brisbane River (Bailey).

BACTRIDIIUM, *Kunze.*

This plant consists almost entirely of oblong, septate, hyaline spores, which radiate from a little dot-like receptacle.

B. flavum, Kunze, on fig bark, Brisbane Scrubs (Bailey).

PUCCINIAE.

Parasitic on living plants. Peridium 0. Spores producing secondary spores in germination, usually oblong and septate.

Puccinea straminis, Tuck., New South Wales (Mueller).

P. chondrilla, Corda, New South Wales (Mueller).

UREDINAE, *Léveillé.*

Minute epiphyllous fungi. Receptacle formed of several superimposed irregular cells, each containing a single, simple, sessile, or very shortly stalked spore.

U. maydis, DC., on leaves of Maize, Brisbane River (Dr. Bancroft)

THECAPHORA, *Fing.*

Spores oblong or subglobose, smooth or echinulate, agglomerated together, few or many with more or less angular masses, enclosed in cysts.

T. globuligera, B. et Br., *n. sp.*, on *Lcercia hexandra*, Brisbane River (Bailey).

TRICHOBASIS, *Léveillé.*

Spores free; attached at first to a short peduncle, which at length falls away.

T. rubigo-vera, Lév., on *Hemarthria compressa*, Brisbane River (Bailey). The red rust or farmers greatest plague; spots or heaps oval, scattered, mostly on the upper surface; epidermis at length bursting longitudinally, spores subglobose, reddish-brown.

MELAMPSORA, *Cast.*

Spores of two orders, crowded into a dense, compact mass, with or without a covering, wedge-shaped.

M. phyllodiorum, B. et Br., on *phyllodia* or *Acacia*, Brisbane River (Bailey).

USTILAGO, Link.

Minute fungi, deeply seated in the tissues of the plants they infest. Spores simple, arising from delicate threads or produced in a form of closely packed cells, that break up into a powdery mass.

U. carbo, Tul., on Western Queensland specimens of *Aristida* (Bailey), var. *bromivora*, on *Bromus arenarius*, Murray River Journal of Linn. Soc., Bot., XIII., 174; var. *columellifera*, Tul., Rockhampton, Queensland (*l. c.*)

U. avicola, Berk., on *Fimbristylis*, Brisbane River (Bailey).

U. segetum, Ditm., corn smut produced on the receptacle and rhachis; epidermis soon ruptured; spores loose, minute globose, black, on ears of wheat, Darling Downs, Queensland (Bailey).

U. emodensis, Berk., on *Polygonum*, Brisbane River (Dr. Bancroft).

U. bullata, Berk., forming long spots on the inflorescence of grasses Murray River Journal of Linn. Soc., Bot., XIII., 174.

TILLETIA, Tul.

Spores spherical, reticulated, proceeding from delicate branched threads.

T. caries, Tul., spores large, black, spherical, filling the grains of wheat with dark-colored fetid spores: Bunt., Darling Downs (Bailey).

ÆCIDIACEI.

Peridium distinctly cellular, mycelium traversing the tissues of living plants.

ÆCIDIDIUM, Persoon.

Peridium membranous, with lacerated reflected orifice. Spores concatenate, collected into sori.

Æ. apocynatum, Schwein., on leaves of *Tabernaemontana*, Brisbane Scrubs (Bailey).

CRONARTIUM, *Fries.*

Spores contained in a peridium, bursting by a regular or irregular apical orifice. Perfect spores produced in a columnar, cellular body called the ligule rising out of the centre. The most perfect form of structure in the family.

C. asclepiadeum, Fr., Darling Downs (H. Law.), on *Jacksonia scoparia*.

Sub-order IV.—HYPHOMYCETES.

Filamentous or floccose fungi. Filaments naked, simple or branched, free or united below so as to form a distinct stem with free branches. Spores terminating the filaments.

Tribe STILBACEI.

Receptacle globose; spores minute, involved in gluten, stem compound.

STILBUM, *Tode.*

Stalk solid, heads deciduous, gelatinous, spores minute.

S. aurantiaceum, Berk., on *Laportia gigas*, Enoggera Scrubs (Bailey)

S. cinnabarinum, Mont., on bark, Trinity Bay (Bailey).

FUSARIUM, *Link.*

A form of mould which spreads beneath the cuticle of the plants upon which they grow in gelatinous spots. One species is most destructive to the Mulberry, another affects the Rye in some seasons in England, these have as yet not been found in Australia.

F. rubicolor, B. et Br., a species found on the Eucalypt leaves its presence is at once detected by the blotches of red which it forms, Brisbane River (Bailey) *n. s.*

ILLOSPORIUM, *Montf.*

Receptacle obscure; spores irregular, falling away like meal.

I. flavellum, B. et Br., a yellow species often seen on Lichens, Brisbane River (Bailey) *n. s.*



Tribe DEMATIEI.

Filaments free, more or less corticated and carbonized. Spores often compound and cellular. Black Moulds.

CLADOSPORIUM, *Link.*

Filaments of mycelium divided into short branches, bearing short 1—septate deciduous spores.

C. herbarum, Lk., mycelium dense dark, filaments pellucid. Spores olive. The ubiquitous black mould on every thing, frequently covering the inflorescence of *Ischæmum australe* in damp underground localities in Queensland (Bailey).

C. papyricola, B. et Br., on wall-paper, Brisbane (Bailey) *n. sp.*

HELMINTHOSPORIUM, *Link.*

Like *Cladosporium*, threads less carbonized. From the mycelium arise rigid erect, jointed threads, of a dark nearly black color, rather paler at the apex, spores usually produced from the apex.

H. Ravenelii, Curtis, on various species of *Sphorobolus*, Brisbane River (Bailey).

Tribe MUCEDINES.

Filaments not coated with a membrane, distinct, white or colored. Spores simple. Blue mould.

ASPERGILLUS, *Mich.*

Threads jointed, swollen at the apex and there studded with radiating cells, each of which produces a necklace of spores.

A. glaucus, Lk., the common species; spores globose, echinulate often on other fungi, Brisbane (Bailey).

CIRCINELLA, *Fries.*

C. umbellata, Van. Tieghem and Le Monmèr, var. *Moreliæ*, B. et Br., Brisbane, on dung of carpet snake kept in a box at the Queensland Museum (Bailey, *s. n.*)

VERTICILLIUM, *Link.*

Little moulds known by their distinctly woolly branches, at the apex of which are the spores.

V. eximium, Berk., a very beautiful species found on *Clavaria* at Parramatta by W. Woolls.

OIDIUM, *Link.*

This genus is considered by some to be an early stage of some Erysiphe.

O. Tuckeri, Berk., Vine mildew.

O. erysiphoides, var. *cucurbitarium*, Spitzenberger. This form is in some seasons very destructive to Melons, Vegetable Marrows, &c. Both about Brisbane.

SPORIDIIFERA.

Having the spores or reproductive bodies contained in asci or bags.

Sub-order V.—ASCOMYCETES.

Fruit consisting of asci, containing sporidia, and springing from a naked or enclosed nucleus or hymenium, which is often spread over a receptacle.

HELVELLACEI.

Substance soft, fleshy or waxy. Hymenium more or less exposed.

MORCHELLA, *Dill.*

Head deeply pitted, naked, supported on a peduncle. The depressions are sometimes regular, but occasionally they assume the appearance of furrows with wrinkled interstices.

M. semilibera, DC., Clarence River, Journal of Linnean Society, Vol. XIII., Botany, page 175.

PEZIZA, *Dillenius.*

Cup-shaped fungi. Receptacle fleshy or sub-fleshy, at first closed, then open. Hymenium persistent. Asci distinct, fixed, mixed with paraphyses, elastically ejecting the spores. A very

large and beautiful genus, found on dung, rotten wood, &c., &c., at first sight one might mistake these plants for the apothecia of Lichens.

P. confusa, Fr., on damp earth Brisbane River (Bailey).

P. (Cupularis) vinoso-brunnea, B. et Br., *n. sp.*, on burnt earth, Brisbane River (Bailey).

P. (Geopyxis) cinereo-nigra, B. Br., Redlands Bay, Queensland (A. J. Boyd).

P. (Lachnea) scutellata, Linn., on Pine bark (Bailey).

P. coprogera, B. Br., on dung Brisbane River (Bailey), *n. s.*

P. (Humaria) scatigena, Berk., on cow-dung, Ithaca Creek (Bailey)

CENANGIUM, *Fries.*

Form of *Peziza*, but firm, tough and coriaceous. Receptacle or cup closed, opening late. Hymenium smooth persistent.

C. lichenoideum, B. et Br., it forms dense masses of ashy-gray cups, which are stipitate half in first line, broad resembling a lichen in appearance, Ranges of Trinity Bay (Bailey).

PHILLIPSIA, *Berk.*

This is nearly allied to *Peziza*, but Messrs. Berkeley and Broome have found it to differ so far as to have founded a new genus upon it, the characters of which are not as yet published.

P. subpurpurea, B. et Br., *n. s.*, on rotten timber in scrub near Enoggera dam (Bailey), a very beautiful fungus of a rich purple color.

HELOTIUM, *Fries.*

This genus differs from *Peziza* in its disc being open from the first, not closed in early growth as in that genus.

H. terrestre, B. et Br., *n. s.*, on damp earth, Taylor's Range near Brisbane (Bailey).

Tribe PHACIDIACEI.

Perithecium coriaceous or carbonaceous; outer coat or perithecium bursting and exposing the disc, which is surrounded by an obtuse or inflected margin.

RHYTISMA, *Fries.*

Perithecia confluent, wrinkled, stroma thin.

R. hypoxanthum, B. et Br., *n. s.*, on leaves of *Cudrania javanensis* Brisbane River (Bailey). This fungus forms thick yellow patches, dotted with black, on the foliage of the above rambling shrub.

ASTERINA, *Léveillé.*

Minute flattened epiphyllous fungi. Perithecia fragile, formed of a fimbriated mycelium. Asci perfect.

A. Baileyi, B. Br., new species on leaves of *Hakea lorea*, Spring-sure (Bailey), Burnet River (Dr. Bancroft), Maroochie (Bailey).

A. pelliculosa, Berk., on *Trema aspera* leaves, Maroochie (Bailey).

SPHÆRIACEI.

Perithecium carbonaceous or membranous, pierced at the apex. Hymenium diffuent. Asci usually springing from its walls.

HYPOCREA, *Fries.*

Fleshy or gelatinous, horizontal fungi, growing on wood &c. Perithecia tender, hyaline or colored. Sporidia indefinite.

H. membranacea, B. et Br., *n. s.*, on wood, Brisbane scrubs (Bailey)

XYLARIA, *Fries.*

Club shaped, somewhat corky, often friable fungi, usually distinctly stipitate, covered with a rufous or black bark. Perithecia crowded on the surface of the receptacle. Sporidia eight.

X. pileiformis, Berk., on wood, Enoggera Creek (J. R. Mair).

- X. tabacina*, Kick, New South Wales (Mueller).
X. polymorpha, Fr., Tweed River (Guilfoyle), Brisbane Scrubs
 (Bailey).
X. hypoxylon, Ehr., Herbert's Creek (Bowman)
X. rhytidophlæa, Mont., Enoggera (Bailey).

HYPOXYLON, *Bulliard.*

Characters of *Xylaria* but horizontal. Stroma not confluent with the substance of the plant on which it grows.

- H. concentricum*, Fries, large blackish subglobose, concentrically zoned within, throughout Queensland (Bailey).
H. rubicosum, F. et Mont., Brisbane River on timber (Bailey).
H. rutilum, Tulasne, on old wood, Rockhampton (Thozet).

PORONIA, *Fries.*

Body cup-shaped, in which the vertical perithecia are immersed.

- P. adipus*, Montagne, Gracemere (O'Shanessy).
H. angolense, Welwitsch et Currey, on logs, Ranges of Trinity Bay (Bailey).
H. cetrarioides, Welwitsch et Currey, Ranges, Trinity Bay (Bailey).
 These specimens were the first found with mature fruit.
H. cretaceum, B. et Br., *n. sp.*, on logs, Ranges, Trinity Bay (Bailey), This fungus while fresh is pure white, globose or sub-globose, somewhat stipitate, one to two inches high. The interior substance is composed of broad, flaky, woody, but fragile strata, radiating from the stem to the outer surface, of a pale cork-color.

NECTRIA, *Fries.*

Small fungi, on wood bark &c. Perithecia free, seated on a mycelium, thin, rarely thick, vertical, brightly colored. Sporidia eight, translucent.

- N. coccinea*, Fr., on bark, Brisbane River (Bailey).

SPHERIA, *Haller.*

Stroma 0, or spurious, and formed of mycelium. Perithecia various, vertical, firm, black or dark, often with a bark. Asci perfect. Sporidia eight.

S. (Subsecta) polyascia, B. et Br., on bottle gourd. This is a new species and not yet described, so the name may not be retained but is mentioned here to notice the species which forms large black patches on gourds if left on the field.

SPHERELLA, *De Not.*

Perithecia membranaceous, immersed or semi-immersed, scarcely papillate, sporidia oblong, two or more celled, rarely simple; hyaline pale or colorless.

S. destructiva, B. et Br., a black or brown spot-like fungus, very destructive to Lucerne on the Brisbane River (Bailey).

PERISPORIACEI.

Perithecia free, subglobose, always closed, except when decaying membranous or carbonaceous. Nucleus never diffuent. Asci springing from the base.

MELIOLA, *Fries.*

Perithecia carbonaceous, fragile, without a pore, developed from a strigose mycelium. Asci broad. Sporidia few, large.

M. amphitricha, Fr., a thready black fungus, often found on the leaves of scrub shrubs, Brisbane River (Bailey).

M. tetracera, F. v. M. and Thümen, New South Wales.

PHYSOMYCETES.

Filaments free or slightly matted, bearing vesicles which contain indefinite sporidia.

ANTENNARIEI.

Filaments black, matted, often moniliform.

ANTENNARIA, *Link.*

Black fungi, consisting of black jointed, moniliform filaments, bearing here and there spore-cases full of granules.

A. , allied to *A. semiovata*, Berk., Brisbane River (Bailey). This is the black fungus which thickly coats the leaves of plants.

MYCELIA.

Rhizomorpha Harrimanni, Sow. This is the mycelium of different species of *Xylaria*. It may often be noticed quite coating the logs in dense scrub, giving to them the appearance of being covered with the skin of some shaggy animal.

Xylostroma giganteum, Sow., is another mycelium, found in old timber, this can often be obtained in very large flakes in consistency it resembles wash leather, but is usually of a pure white.

Addenda.

Podaxon pistillaris, Fries, North Australia (Armit).

Mutinus papuasius, Kalchb., Rockhampton, (Thozet).

Tulasnodea leprosa, Kalchb., Gracemere (O'Shanessy).

Sorosporium eriachnei, Thümen, New South Wales (Mueller).

Sporotrichum densum, Link., New South Wales (Mueller).

Bisporum monilioides, Corda, New South Wales (Mueller).

Hymenangium Moselei, Berk. and Br., Parramatta (Moseley).

Sepedonium, Berk., found in old *Boleti* composed of loose branched threads with large echinate spores at tip.

S. chrysospermum, Link., Parramatta (Moseley), see Jour. Linn. Soc., Vol. 16.
